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SOME NEW ISSIDAE, WITH NOTES ON OTHERS—
(HOMOPTERA-FULGORIDAE).

BY E. D. BALL, Tucson, Arizona.

Euthiscia tuberculata Van Duzee described from the Gulf of California region has been taken by the writer from the gray shrubby Verbena (*Lippia wrightii*) in Sabino Canyon near Tucson, Arizona.

Hysteropterum bufo Van Duzee described from the same region has been taken by the writer in a number of places in Sonora, Mexico, and a single female at the High Tanks (Tinajas Altas) in Arizona near the Mexican border.

***Hysteropterum sepulcralis* Ball n. sp.**

Resembles *bufo* but smaller, darker with less elevated lateral carinae of vertex and the median tablet of front broader. Dark brown or gray. Length 3-4 mm.

Front slightly shorter and much broader than in *bufo*, the central tablets half wider. Clypeus uniformly rounding, not elevated and abruptly angled below as in that species. Vertex parallel margined, concave, the posterior margin much higher than the anterior. Pronotum much shorter than in *bufo*, scarcely as long as the mesonotum, the margins adjacent to eye not elevated as in that species. Elytra with the dorsal line strongly arcuated, a pair of elongated pyramidiform elevations on the claval areas against the scutellum, and usually four small ones in a row across just back of the middle of claval areas. The costal margin of elytra is much narrower just before the angle than in *bufo*.

Holotype ♀, allotype ♂, and 2 paratypes, Bisbee, Arizona, October 14, 1931; 12 paratypes, Naco, October 14, 1931; Tombstone, May 14, 1930, and August 1, 1931. All collected on the tar-bush (*Flourensia cernua* D. C.) by the writer. This species is allied to

bufo in its single spine on tibia and its sinuate dorsum, but is specifically quite distinct. It resembles var. *utahnum* of *cornutum*, but the long low elevations of the claval areas of that species are also quite distinct.

***Osbornia arborea* Ball n. sp.**

Size and general form of *cornuta* Ball but the vertex angularly produced and the elytra long. Color yellow and green. Length 3 mm.

Vertex nearly flat, the disc depressed, anterior margin obtusely angulate and definitely carinate, posterior margin deeply angularly excavated so that the two margins are nearly parallel. The lateral angles not elevated as in *cornuta*. Front narrower than in *cornuta* and longer, not extending more than half as far down the sides of the small clypeus, a definite median carina above. Elytra scarcely as wide, and nearly twice as long as in *cornuta* almost covering the abdomen. The abdomen elevated posteriorly but not compressed and inflated on each segment as in the latter species.

Color slightly tawny yellow, the abdomen greenish. Elytra creamy, the scutellar margin often brown, the posterior half of costal and all of the apical margin irregularly marked with smoky or black.

Holotype ♀, and seven paratypes, July 20, 1930; allotype ♂, and 6 paratypes, June 14, 1930; all taken by the author from Juniper, at Patagonia, Arizona.

Hysteropterum cornutum var. ***utahnum*** Ball n. var.

Size and form of the species nearly, much darker and with the elevation on clavus longer and more acute. Length 3-3.5 mm.

Vertex and front as in the species, the carinae bounding the eye not as highly elevated. The inner vein of clavus strongly elevated throughout but especially elevated into a pyramid before the apex of mesonotum, the dorsal line correspondingly sinuated. Color gray with dark dots and spots throughout, especially marked on the nervures and sometimes forming a double row of dots across the anteapical cells as in *sepulcralis*.

Holotype ♀, allotype ♂, and 10 paratypes, taken by the writer near the Grand Canyon, August 1, 1930. Typical *cornutum* is ordinarily pale creamy or lighter while this variety, probably from the black sage (*Artemisia cana* Pursh.) would be placed with *bufo* or *sepulcralis* on color but lacks the acute carinae and pyramids of those species.

Aphelonema bivittata Ball.

This species is found more abundantly in Arizona than in the plains region from which it was described. Like *simplex* it becomes highly variable in color in the subtropical environment. Bunn, Jl. Kans. Ent. Soc., 3, p. 74, 1930, described one of these varieties as a new species under the name *convergens* and another as var. *canyonensia* of *convergens*. He gave no structural character that will separate either from *bivittata*. The differences in genitalia are apparently due to position rather than structure. As the writer has pointed out previously (1926) the species in this group have good structural differences while the color variations in the more tropical representatives are extremely numerous.

Aphelonema solitaria Ball n. sp.

Greenish or straw color resembling *viridis* Dozier but larger. Not as large as *nigriviridia* Ball and lacking the black stripes, face much narrower than in either species. Length: ♀, 2 mm.; ♂, 1.5 mm.

Vertex about equalling the pronotum in length much narrower than in *viridis* with the truncate portion in front very narrow, less than a third of the length of the oblique margin, instead of equalling it as in *viridis* or *nigriviridia*, the disc definitely below the carinate margins. Pronotum and mesonotum relatively flat, the carinae little elevated. Median compartment of front elongate, one-half longer than wide, instead of wider than long as in the allied species, narrowing above where it is only one-fourth of its apical width. Lateral compartments widening above with four pustules against the eye and six inside. Four large pustules below the median compartment. Clypeus not inflated and scarcely angled with front.

Color pale straw, the elytra and frontal smoky, the pustulate areas lighter. The abdomen with traces of four brownish stripes. Male colored like the female, which is unusual in this group.

Holotype, ♀, from Madero Canyon, Santa Rita Mts., September 29, 1929 (labeled Tucson). Allotype, ♂, from the east side of Santa Rita Mts., July 11, 1932. Both collected by the writer. The male of this species and a male of *viridis* were taken from the same damp grassy slope under pines and oaks.

Aphelonema orbiculata Ball n. sp.

Resembling *histrionica* Stål. but more definitely marked and with a round median facial tablet instead of an elongated one. Pale straw with a broad dark band on either side arising on the elytra. Length: ♂, 2.7 mm.

Vertex triangular, about equalling the pronotum, slightly more than half as long as the basal width, the angular margin three times as long as the truncate apex instead of about equal as in *histrionica*. Frontal tablet round instead of long egg-shaped with the base truncate as in *histrionica*. Four pustules between the tablet and clypeus instead of two. The lateral compartments very broad above and heavily pustulate, clypeus not inflated, rounding over into a 30° angle with the front.

Color pale straw, the frontal tablet and a broad median stripe occupying one-third of the vertex, pronotum, mesonotum and abdomen and about one-half the elytra, ivory white. The margins of stripe and the median carina of abdomen rusty. The pustular areas on head and mesonotum dark, the pustules light. The outer half of the elytra becoming smoky beyond the hinge and shading to black at the apex where this color is continued as a broad lateral stripe on abdomen with the pustules white. The clypeus except base dark and the femora annulate.

Holotype, ♀, from Mexico City, July 2, 1932, in the collection of the author. Paratype male, Chapultepec, Mex. (Kirkaldy) in the Van Duzee collection of the California Academy of Sciences.

Papagona Ball n. gen.

Allied to *Aphelonema* but much more elongate in form with the vertex as long as wide the eyes enclosing only about half the pronotum and the front triangular, broadest below.

Vertex flat, long and narrow, longer than pronotum, equaling the mesonotum, as long as its basal width. Head with the eyes definitely narrower than the pronotum which is constricted on the anterior half and enclosed by the eyes and then widened and laterally carinate posteriorly, but again exceeded in width by the elytra and abdomen. (In *Aphelonema* the insect is barrel shaped, the head almost as wide as the body.) Pronotum extremely long and narrow, almost as long as wide, the lateral margins carinate and broadly pustulate, mesonotum elongate the lateral carinae extremely high and enclosing a tablet that is much longer than wide. Elytra brachypterous covering over one-half the abdomen, the sutural line depressed in middle, the posterior margin rounding with an inflated area in front on either side. Venation as in *Aphelonema*. Hind tibia with a single stout spine. Face elongate, retreating, forming a 30° angle with vertex. Front the shape of a rather long flat-iron. Truncate with two pustules below. The lateral pustulate areas extremely wide above.

Type of the genus: *Papagona papoosa* n. sp.

Papagona papoosa Ball n. sp.

A gray and brown species with a long vertex, a broad median white stripe and 3 pairs of white spots. Length: ♂, 2.6 mm.

Vertex long, tapering, deeply concave, the postocular carinae of the pronotal flaps rounding, only a little higher than the carinate lower margin. Mesonotum with the median portion flat. Front much longer than its apical width. The lateral margins of the pustulate areas very weakly carinate.

Color pale straw, a broad median white stripe to the apex of the mesonotum narrowing posteriorly. The outer inflated portion of elytra and the median inflated portion of abdomen piceous, a pair of round waxy spots back of the hinge on the elytra, a smaller pair in the saddle, a large pair on outer portion of the first exposed segment and often three approximate dots along the median line. Below and legs dark brown shading out to straw on the front. The coxae and venter pale blue.

Holotype, ♂, taken from the bluffs of the Santa Cruz River near Tubac, Arizona, August 6, 1932. Paratype male in the same spot, May 13, 1932. Both swept by the author from a clump of joint grass (*Muhlenbergia porteri*).

Papagona succinea Ball n. sp.

Resembling *papoosa* but with a shorter head, a depressed mesonotum. Of a rich amber color without the median stripe. Length: ♂, 2.5 mm.

Vertex definitely shorter than in *papoosa*, with the apex more bluntly rounding, the disc almost flat with the marginal carinae raised, instead of deeply concave as in that species. Mesonotum with the lateral carinae of the central tablet close together, strongly arched and with a deep V-shaped depression between. Frontal tablet definitely broader and more rapidly narrowing than in *papoosa*, the bounding carinae of the pustulate areas elevated in front of the eyes. The postocular carinae of the pronotal flap definitely angled posteriorly. Color rich reddish amber, the smooth surfaces translucent, the pustulate areas waxy and paler. Three pairs of large white spots and 3 pairs of small approximate ones on abdomen as in *papoosa*. The legs brown, the coxae creamy.

Holotype, ♂, and two paratype males, April 4, 1933; three paratype males (and a female nymph), April 14, 1934; all taken by the writer on a small clump-grass (*Triodia mutica* Benth.) in the Tucson Mountains, Arizona, and one paratype male taken April 10, 1931, in Sabino Canyon of the Santa Catalina Mountains, Arizona.